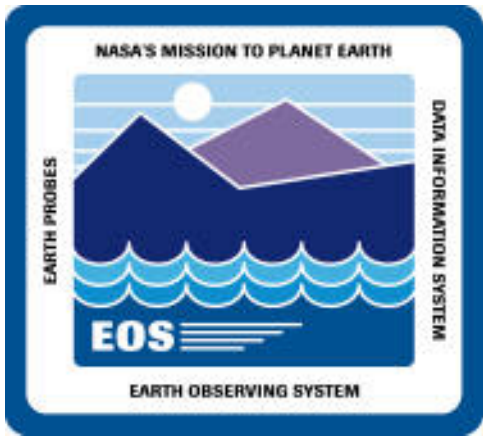
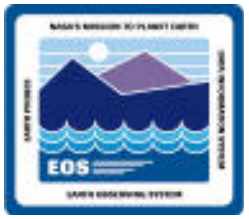


Release B System Acceptance Test Plan

Sherhonda Adams Kibler

03 November 1995

Agenda



- ECS Acceptance Test (AT) Program
- Test Development Process
- Release B System Acceptance Test Plan
- Acceptance Testing and AT Life Cycle
- Test Participants
- Test Environment
- Simulators, Data Generators and Test Data
- Interfaces
- Test Tools
- IATO Test Schedules

ECS Acceptance Test Program

Performed at all ECS sites (DAACs, SMC & EOC)

- Final ECS test activity prior to delivery to ESDIS
- Verifies release functionality and performance
- Lead by the Independent Acceptance Test Organization (IATO)
- Testing starts after the Consent to Ship Review (CSR)
- Results presented at the Release Readiness Review (RRR)
- Acceptance test process is defined in:
  - Acceptance Test Management Plan (DID 415)
  - Verification Plan (DID 401)
  - Release A and B Acceptance Test Plans (DID 409)
- Acceptance test implemented in accordance with:
  - Release Acceptance Test Procedures (DID 411)
    Site specific volumes
  - Test execution with EOC, SMC and DAAC's with M&O support

Test Development Process

Level 3 Requirement Analysis

- Decomposition
- Interpretation
- Verification method assignment

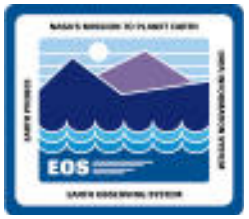
Requirement Criticality Assessment

- Mission critical
- Mission essential
- Mission fulfillment

Acceptance Test Scenario Definition

- Operations Concepts
- User characterization models
- Develop scenarios
- Map requirements to scenarios

Test Development Process (Cont'd)



Test Procedure Development

- DAAC Interaction
- Flight Operations Team Interaction

Lessons Learned

- Release A Testing
- Release B Integration and Test

Release B System Acceptance Test Plan (ATP)

Outlines the Acceptance Test process

- Preliminary plan detailed to Scenario Level - Delivered at RIR (3/95)
- Final Plan detailed to Test Case Level - Delivered at IDR (10/95)
- Release B builds on Release A Scenarios
- Followed by preliminary Acceptance Test Procedures documents delivered at TRR-B (12/96), final procedure documents delivered at CSR-B (6/97)

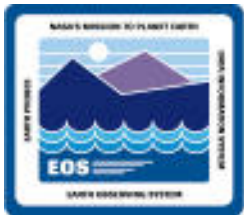
Uses ECS source material

- F&PRS, IRDs, ICDs
- Technical Baseline
- ECS Operations Concept
- Release Plan

Mapped into five broad scenario groups

- System Management, Push, Pull, Flight Operations and End-to-End

Acceptance Test Scenario Groups



ECS SYSTEM MANAGEMENT

- ECS SITE COMMISSION
- ECS SITE UPGRADE
- SCHEDULING SCENARIO
- RESOURCE MGMT
- PERFORMANCE MGMT
- MGMT SERVICES
- ANCILLARY SERVICES

PULL

- DISCIPLINE/DAAC ORIENTED SCIENCE
- SCIENCE COMPUTING FACILITY
- INTERDISCIPLINARY/ INTER-DAAC SCIENCE
- ASF DAAC DATA ACCESS

END TO END

- MULTI-SITE INTER-COMMUNICATIONS
- AM-1 END-TO-END
- ASTER DAR END-TO-END
- HYDROLOGY, EARTH RADIATION, AND ATMOSPHERIC DYNAMICS
- ATMOSPHERIC CHEMISTRY, REFLECTANCE, AND SOLAR RADIATION
- OCEAN, POLAR, AND LAND PROCESSES
- SCIENCE DATA INTER-OPERABILITY
- SYSTEM PERFORMANCE

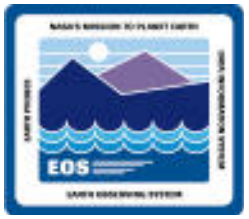
PUSH

- ECS at the LaRC DAAC DATA INGEST OPS
- ECS at the MSFC DAAC DATA INGEST OPS
- ECS at the GSFC DAAC DATA INGEST OPS
- ECS at the EDC DAAC DATA INGEST OPS
- ECS at the JPL DAAC DATA INGEST OPS
- ECS at the NSIDC DAAC DATA INGEST OPS
- ECS at the ASF DAAC DATA INGEST OPS
- ECS at the ORNL DAAC DATA INGEST OPS

FOS

- PRE-CONTACT
- CONTACT
- POST-CONTACT

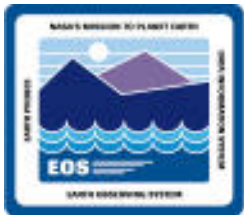
Acceptance Test Life Cycle



Test Activities

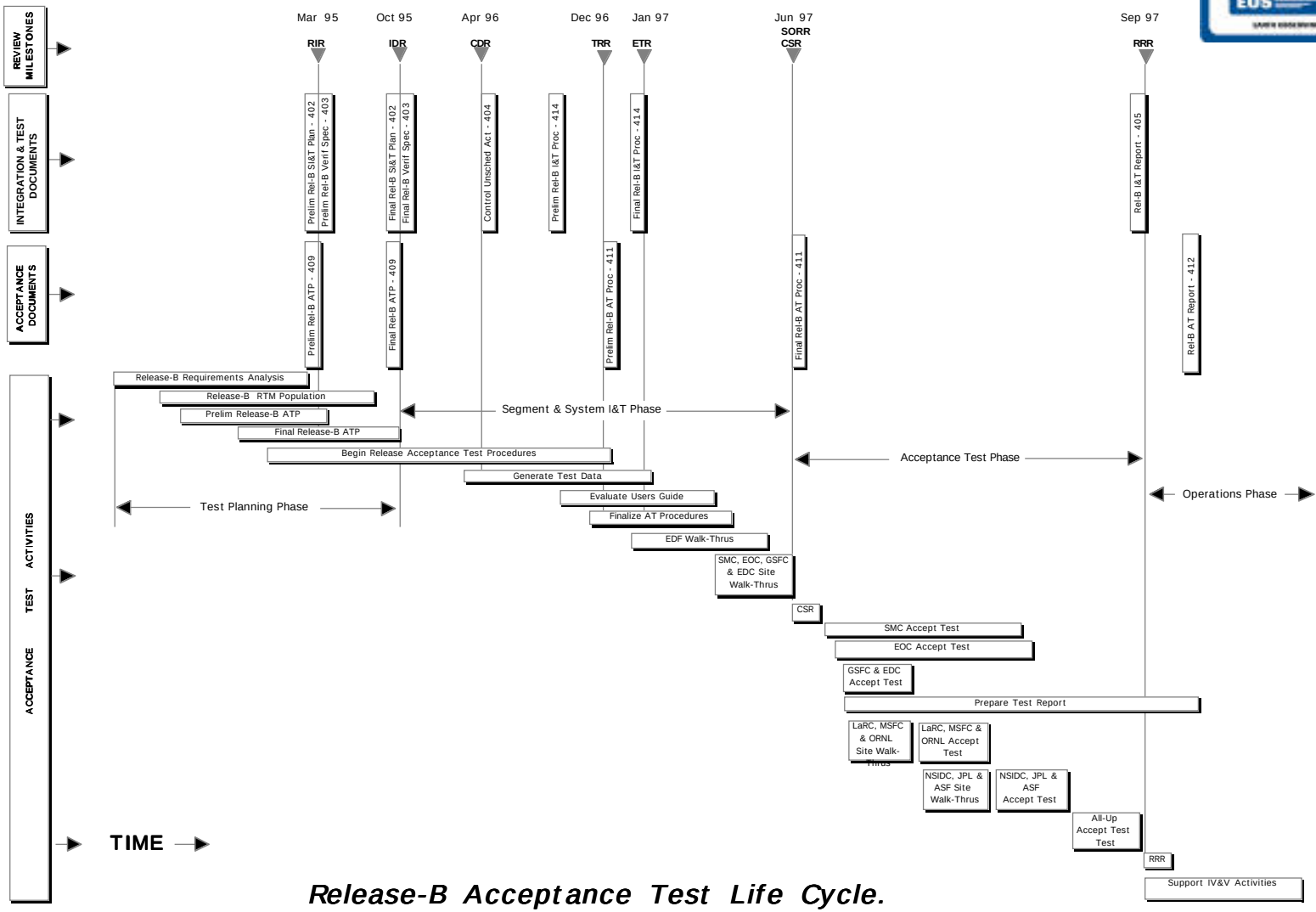
- **Release B Acceptance Test Plan- DID 409 (10/95)**
- **Verification Specification- DID 403 (10/95)**
- **Procedure Generation with DAAC involvement- DID 411 (6/97)**
- **Participate in CSR (6/97)**
- **Perform Acceptance Testing (6/97 - 9/97)**
- **Prepare test results at RRR (9/97)**
- **Prepare Acceptance Test Report- DID 412 (10/97)**

Acceptance Test Life Cycle (Cont'd)



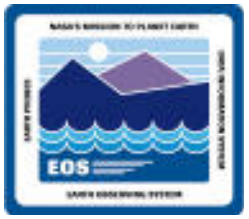
Acceptance Test Home Page

- **http://newsroom.gsfc.nasa.gov/at/athome.html**
- **Release A/B Testing Information**
- **Contains IATO schedules, documentation and test tools**
- **Connection to other related Home Pages**



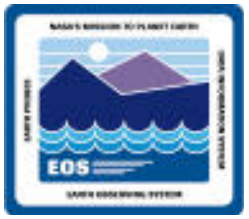
Release-B Acceptance Test Life Cycle.

Test Participants



- **Role Players**
  - **IATO** — **Lead**
  - **DAAC Personnel** — **Support**
  - **Quality Office** — **Support**
  - **Maintenance and Operations** — **Support**
  - **Flight Operations Team** — **Support**
  - **Instrument Operations Team** — **Support**
  - **EGS SI&T Contractor** — **Witness**
  - **IV&V Contractor** — **Witness**
- **Testing roles will be defined in Acceptance Test Procedures Document**
- **Procedure document generated for each DAAC, SMC and EOC and coordinated with each site**

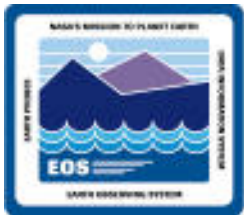
Test Environment



Release B Test Environment

- DAACs, SMC, EOC and Operations Site Testing
- Nominal operational system configuration
- External ECS components whenever they are mature and available

Simulators, Data Generators and Test Data



- **Interface Simulators**
  - **EOSDIS Test System (ETS)**
  - **Existing simulators are being identified**
  - **Other simulators to be developed in-house**
- **Test Data Generators (under analysis)**
  - **Used to construct message content with protocol provided by simulators and servers**
- **Test Data**
  - **Work TDS needs with Dr. Reber's TDS Working Group**
  - **Complete set of test data sets identified by CDR-B**
  - **Test data sets needed by March 1997**

Interfaces

Real Interface Used When:

- There is an approved ICD between the external system and the ECS
- External systems and network connectivity is mature and available
- External systems can be scheduled on a regular basis

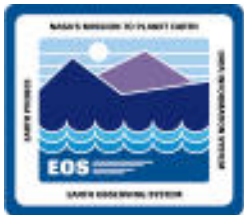
Interface Simulators are used If External ECS Components are not available

- They will reside on workstations connected to the appropriate network

Monitoring of External Systems Development

- Assures availability for interface testing
- Assures functionality is sufficient to verify the ECS IRD requirements

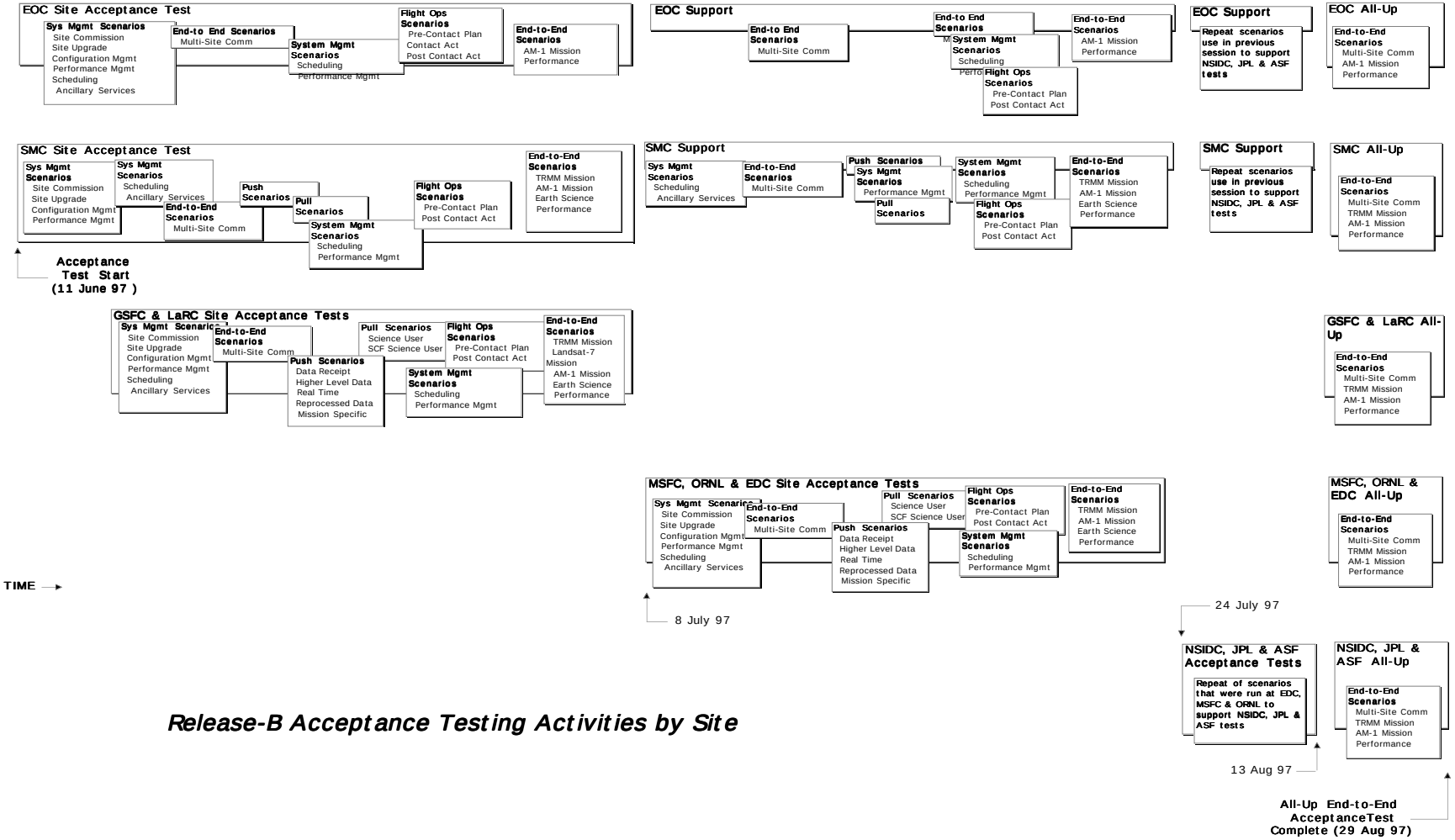
Test Tools



Test Management

- Requirements - RTM
- Test Automation - XRunner
- Performance Testing - LoadRunner
- Configuration Management - CLEARCASE
- Nonconformance Reporting - DDTS

Release B Acceptance Test Timeline



Release-B Acceptance Testing Activities by Site